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TITLE:

Method for etching dielectric using fluorohydrocarbon gas, NH.sub.3 -
generating gas, and carbon-oxygen gas

Abstract Text - ABTX (1):

A method of etching a dielectric layer (20) on a substrate (25) with high etching selectivity, low etch rate microloading, and high etch rates is described. In the method, a substrate (25) having a dielectric layer (20) with resist material thereon, is placed in a process zone (55), and a process gas is introduced into the process zone (55). The process gas comprises (i) fluorohydrocarbon gas for forming fluorine-containing etchant species capable of etching the dielectric layer (20), (ii) NH.sub.3 -generating gas having a liquefaction temperature L.sub.T in a range of temperatures .DELTA.T of from about -60.degree. C. to about 20.degree. C., and (iii) carbon-oxygen gas. The temperature of substrate (25) is maintained within about .+-.50.degree. C. of the liquefaction temperature L.sub.T of the NH.sub.3 -generating gas. A plasma is formed from the process gas to etch the dielectric layer (20) on the substrate (25). Preferably, the volumetric flow ratio of fluorohydrocarbon:NH.sub.3 -generating gas is from about 2.5:1 to about 7:1.